

2. KEYNOTE 1: How to eat an elephant – building a constituency for research in simulation and modelling

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Abstract

Research to develop disciplines and capabilities that underpin outcomes for a variety of applications often struggles to gain support from end users, partly due to assumptions made about the utility of the underpinning science or technologies and partly because it is difficult to find a constituency within some application domains to champion the adoption of new techniques. Modelling and simulation and systems engineering are broad areas that seems to fall within this category outside a few recognised communities.

This presentation discusses some of the ways in which the research community might look to engage users in order to develop an understanding of the benefits associated with the adoption of a systems approach, and in particular the use of modelling and simulation in the design, implementation and operations phases of large projects.

Presenter Biography

Professor Andrew Parfitt commenced as Pro Vice Chancellor and Vice President of the Division of Information Technology, Engineering and the Environment in August 2007. Previously, he was the Director of UniSA's Institute for Telecommunications Research (ITR) (2004 - 2007), one of Australia's foremost ICT research organisations.

In 2006 he concurrently acted as Head of the School of Electrical and Information Engineering and led the strategic planning that resulted in the formation of the new Defence and Systems Institute (DASI) and a closer cooperation between our electrical and electronic engineering related disciplines.

Andrew has been a major contributor to the ATN Universities' push to establish and maintain measures of applied research on the research evaluation agenda.

He has a PhD in Electrical and Electronic Engineering from Adelaide University and was an Associate Dean in the Faculty of Engineering there, before joining CSIRO's Telecommunications and Industrial Physics division in Sydney in 1998. Within the CSIRO he led the Space and Satellite Communication Systems team from 2001. During this time he was responsible for fundamental and applied research in areas ranging from radar and communications to satellite systems and radio astronomy technologies.

Andrew has had an outstanding career as a specialist in antenna and radio systems and more recently in areas relating to space science and technology. A graduate in engineering from the

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE FEB 2013		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE How to eat an elephant â building a constituency for research in simulation and modelling				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Division of Information Technology, Engineering and the Environment, University of South Australia				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADA585222. Proceedings of the 2012 Model-Based Systems Engineering Symposium, 27 - 28 November 2012, DSTO Edinburgh, South Australia., The original document contains color images.					
14. ABSTRACT Research to develop disciplines and capabilities that underpin outcomes for a variety of applications often struggles to gain support from end users, partly due to assumptions made about the utility of the underpinning science or technologies and partly because it is difficult to find a constituency within some application domains to champion the adoption of new techniques. Modelling and simulation and systems engineering are broad areas that seems to fall within this category outside a few recognised communities. This presentation discusses some of the ways in which the research community might look to engage users in order to develop an understanding of the benefits associated with the adoption of a systems approach, and in particular the use of modelling and simulation in the design, implementation and operations phases of large projects.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT SAR	18. NUMBER OF PAGES 8	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

University of Adelaide, he began his professional career with the Defence Science and Technology Organisation before returning to study under a DSTO cadetship.

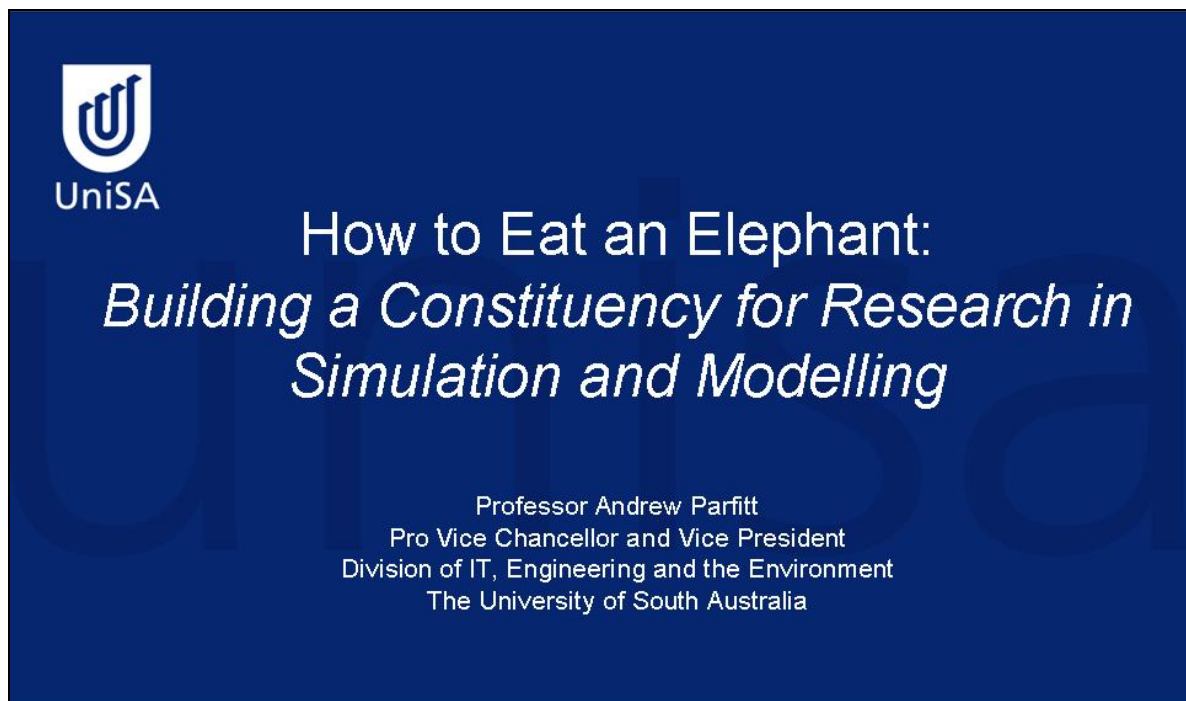
In 2003 Andrew became CEO of the Cooperative Research Centre for Satellite Systems (CRCSS), the national research group responsible for launching FedSat, Australia's first satellite in 30 years.

He has held adjunct academic positions at UniSA, the University of Adelaide, the University of Sydney and Macquarie University. In a professional capacity he is a Senior Member of the Institute of Electrical and Electronics Engineers and has been Chair of both its South Australia and New South Wales Sections. He is Chair of the Australian Academy of Science National Committee for Radio Science, and is a Fellow of Engineers Australia.

He is a Board Member of the Defence Teaming Centre and the Technology Industry Association.

In 2010 he was appointed to the Commonwealth Government's Space Industry Innovation Council.

Presentation





The University of South Australia



37,000 students (undergraduate, postgraduate, research)

6,000 International onshore students

3,500 staff (academic, research, professional)

4 Academic Divisions, 4 City Campuses

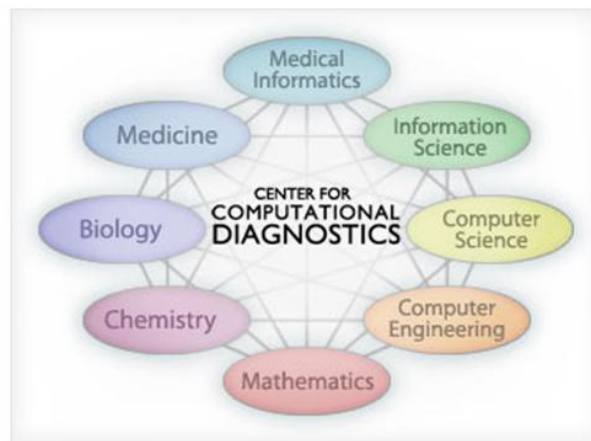
Business; Health Sciences; Education Arts and Social Sciences; IT Engineering and Environment

A\$550m budget, A\$60m research income



The Problem of Enabling Disciplines:

What is an enabling discipline?





The Problem of Enabling Disciplines:

How do you build an enabling discipline?



Challenges



1. Identity – what is it?
2. Utility – what does it do?
3. Maturity – does it work?
4. Ubiquity – doesn't everyone do it?

Classic Example - *Statistics*

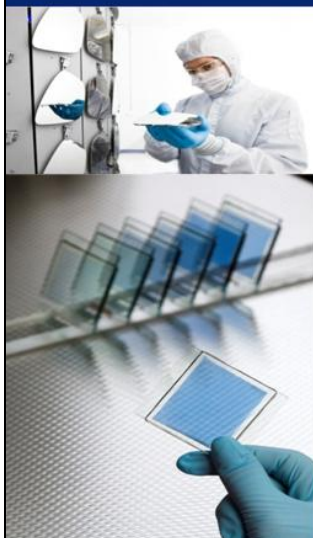


Education and Research: building a foundation

- Education – skills, professions, CPD ...
- Research – knowledge creation, innovation ...
- Engagement –
 - Partnerships and collaboration
 - Industry alliance programs
 - Networks and clusters
 - Technology transfer



Model 1: Collaborative Research



- Materials Science and Technology
 - High quality research (ERA 4 and 5)
 - Collaborative program (CRCs, ITCs, CoEs)
- Example partnership:
 - SMR Automotive – plastic mirrors
 - Long term strategic alliance
 - Staff exchanges, joint appointments
- Alignment of Interests



Model 2: Industry Alliance Program



- ICT Industry - Sector Wide
- Emphasis on developing *work-ready skills*
- Innovation factory – *bite size real problems*
- Partnership on student projects
- Workplace experience – building familiarity
- Promotion of outcomes



Model 3: Research and Innovation Clusters



- Strategic Research Partnerships
- Multidisciplinary challenges
- Extensive consultation and mapping
- Wide participation across UniSA
- Innovative initiatives
 - Zero Waste SA Centre
 - Northern Business Research Partnerships
- From seed funding to major coinvestment



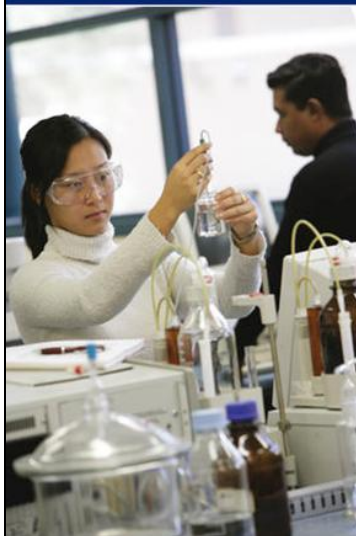
Model 4: Technology Transfer



- Technology transfer nodes
- Spin out companies
- Joint ventures
- IP licencing
- Incubation
- ITEK



Key Success Attributes



- Communication and openness
- Realistic expectations
- Clarity around purpose and outcomes
- Understanding of opportunities
- Leveraging successful models
- Handling Intellectual Property



Questions?

One bite at a time!

